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THE COMPULSORY TUBERCULIN TEST ON CATTLE

BY

EZEQUIEL RAMOS MEXÍA

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THE COMPULSORY TUBERCULIN TEST ON CATTLE

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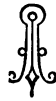
EZEQUIEL RAMOS MEXÍA

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1903

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TO THE ROYAL AGRICULTURAL SOCIETY
OF ENGLAND

This publication is dedicated as a respectful homage. The honour conferred by the Royal Agricultural Society, having unanimously elected me as an Honorary Member, places me under obligation to seek amongst my scanty baggage for something that resembles an effort made in favour of agricultural enterprise, in order to offer it as a mark of gratitude to the institution which has so signally favoured me; for manifestly, supposed services rendered towards their advancement were the ostensible motive for granting this high distinction, by which it has been desired to honour, not myself personally, but the Argentine Rural Society over which I preside, and the country in which it is developing its prolific action.

To be efficacious, even in matters of slight importance, it is prudent to confine ones action to a limited sphere; and should it be the destiny of this publication to serve as something more than an act of courtesy, it could only be of worth by submitting to this judiciously modest rule. On these premises, and being persuaded of its exactitude, the theme selected is the propaganda that I have on different occasions made against the compulsory application of the tuberculin test on cattle, which I now reproduce once more. Whilst it is offered as a tribute to the Royal Agricultural Society, it may possibly lead to the reopening of a debate which is of very great interest to the Argentine Republic, as it is also to England and to other stock-breeding countries, that is, more or less to all civilized nations.

The advantages of the tuberculin test as a means of diagnosis are no longer discussed; not so its practical infallibility, nor its zootechnical utility in all cases and in all situations, that have provoked repeated and interminable debates, between physicians aided by celebrated veterinaries on the one side, and zootechnics and practical men on the other, who have been supported recently by the eminent bacteriologist Koch.

In the Argentine Republic, we have been silent witnesses of these discussions abroad; but amongst us the medical men, absolute masters of the field and without opponents who would dare to dissent from them on scientific matters, have been enabled to implant, in the administra-

tive action of the country, peremptory dispositions which imply definite technical conclusions on points that are still far from having received universal sanction.

I have been the first, indeed the only one, I believe, in this republic who, in the defense of material interests needlessly injured thereby, has ventured to raise a voice in protest. But, alone in the arduous task, without possessing the requisite scientific authority, and having to contend against unanimous opposition from the medical profession, I was defeated on introducing the question in Congress, during the discussion of the Animal Sanitary Police Act, which I had the honour of presenting as a deputy and of defending as the informing member of the agricultural committee of the chamber.

In the original project of law, I proposed that imported cattle should be subjected to a triple test, comprising the injection of tuberculin and a clinical as well as a bacteriological examination, for qualifying the rejection of animals susceptible of transmitting contagion, such as those affected by open or incurable tuberculosis, and for the admission of those which, although affected, should not present dangerous clinical symptoms, suffering from closed or curable tuberculosis, which latter would be branded, so as to notify breeders of their condition, and in order that they might subject the animals to a curative regimen and exercise over them an indispensable but easy vigilance.

I sustained those propositions in the discourses which are reproduced in this pamphlet, founding

them on potent reasons which, I doubt not, will some day be recognized to be accurate. But the chamber, following the course adopted by the Minister of Agriculture and yielding, as he did, to the pressure exercised by medical men, voted an article disposing the destruction of all imported animals that should react to the tuberculin test, whatever the state of development of the disease might be.

The Senate, when discussing the bill so modified, fortunately threw out this unhappily inspired article, it being thereby implicitly agreed to leave the point for the Executive to determine, on promulgating the corresponding decree; and thus an intermediary solution between the two opposing tendencies was adopted in the Sanitary law, which does not declare in favour of either, but leaves the government at liberty to adopt the prophylactic system which may finally result victorious.

The newly decreed by-rules, however, retain the former regimen of systematic destruction of all affected animals, without making any distinction between the harmless and the dangerous, to the great prejudice of the trade in breeding stock; but I cherish the hope that long time will not pass without a modification being made in the rules and regulations now in force, which do not correspond to the real exigencies of public health. Possibly this pamphlet may not prove altogether fruitless as a means of producing this change, if the scientific authorities, to whom I purpose forwarding it for consultation, should deem the question worthy of their

attention and communicate their valuable opinions to the Argentine Rural Society.

Whatever may be the result of those consultations, the object I had in view on bringing together my modest contributions towards the rational use of the tuberculin, for presenting them to the Royal Agricultural Society of England as a token of respect, will have been fulfilled if it should consider that those efforts may in some degree explain, although they can by no means justify my unmerited designation as an Honorary Member of the first agricultural association of the world.

Once more I offer the expressions of my gratitude and respect.

Ezequiel Ramos Mexia

President of the Argentine Rural Society.

Buenos Aires, January 1903.

THE COMPULSORY TUBERCULIN TEST ON CATTLE

(Speeches delivered before the Chamber of Deputies by Mr. Ezequiel Ramos Mexia, informing member of the Agricultural Committee of the chamber and author of the Sanitary Law for animals, being then under discussion—July 1900).

MR. PRESIDENT:

On presenting, in the name of the agricultural committee, the general report on this subject, I stated that I would amplify it whenever, during the discussion of the several articles, any point should require special explanation.

This article is one of them, as it involves a question of great scientific and practical importance, which it is therefore convenient to explain in detail. In order that the debate may be carried on in a clear manner and that there may be no room for confusion, I believe that it will be opportune to state the respective positions of those who support this article in its present form and of those who combat it, that is to say, of the agricultural committee on one side and on the other of the Executive.

The importation of animals is at present governed by the regulations issued by the Executive some two years ago, and which are illegal in whatever light we regard them, in view of the fact that no law exists to authorize them; so that I cannot understand how they came to be framed and much less why they have not been impugned by those who so frequently have been prejudiced by the excessive measures they contain.

In these regulations it is declared that all animals that, after being tested by tuberculin, show a stated thermal reaction are to be rejected; and as, notwithstanding what the member for Santa Fe has said, animals rejected in the ports of the Republic, as being affected by contagious diseases, are not admitted in any country in the world, not even in the neighbouring Republic of Uruguay, this disposition of the regulations establishes, if not in a categorical manner, at least virtually and practically, that animals reacting to the test must be slaughtered.

The committee, for its own part, accepts this measure, rigorous as it is, but circumscribes it to those cases in which the animals condemned are affected by generalized tuberculosis, and present, in consequence, the danger of contaminating other animals.

So that on this point there can be no discussion, because there are no opposing opinions; both the committee and the Executive are perfectly in accord, that all animals that are affected by contagious tuberculosis, that

is, those that are dangerous, should be sacrificed in the lazaret.

I should like to dwell on this point somewhat, so as to fix the attention of the hon. members regarding it.

The committee does not dispute the point in any way, considering that it is established in a clear and terminant manner: all animals that show symptoms of contagious tuberculosis are to be slaughtered, as prescribed in the regulations of the Executive. This has been accepted by us and is not disputed; consequently it is useless to return to the point, for we should have to repeat twenty times what has already been declared beyond discussion.

What we discuss is something entirely distinct; we desire to know if animals that are absolutely inoffensive are to be doomed to the same fate as the dangerous animals, seeing that the regulations impose identical dispositions respecting one and the other. The Executive declares that they should; the committee is of opinion that they should not. The Executive wishes to continue slaughtering the inoffensive animals as well as the dangerous ones; the committee desires to limit this official hecatomb to those animals that really constitute a danger, on account of the degree of development to which their disease has arrived. The committee desires to respect the principle of free importation, believing that it can be restricted only in those cases in which manifest public necessity should render it absolutely indispensable. The

Executive seems to ignore this leading principle; it rejects it as a conception and as a rule, whether necessary or not for the public interests which have been confided to its care.

It can not be asserted then, that the committee desires to continue bringing into the country animals that offer danger of spreading the effects of tuberculosis, through the importation of animals liable to produce contagion. No, Mr. President; what the committee desires is, that there should not be added to the evils, not very considerable, caused by tuberculosis of cattle, the ravages of the tuberculin test, applied blindfold, without scientific guidance, in virtue of antiquated and erroneous reasoning and with a lamentable lack of knowledge of notorious advances in the medical science.

It must not be said, either, that the committee desires to discredit the country, inscribing in this law the faculty of importing tuberculous animals. No, Mr. President; what the committee pretends is precisely the opposite: it demands that the country should not be discredited by the adoption of those measures,—which are not defensible in my opinion—by copying from a scientific scheme, adopted by the greater part of the civilized nations, only fragmentary and isolated dispositions, and amongst these precisely the most violent and ineffective. What the committee desires is that inoffensive animals should not be slaughtered in the port, whilst allowing free transit to the four quarters of the republic of animals that are scattering throughout it their generalized tuberculosis, forming therefore a greater danger to our live stock.

The committee believes that this is what discredits the country, and not the measures that it proposes; and it also opines that, if the government desires to accredit itself by the excellence of its sanitary regulations, it should mature a scheme for the extinction of tuberculosis throughout the whole country, in the interior as well as on the frontiers; and it believes that only in such a case would those violent measures be justified. Otherwise, to include in the law a disposition for the purpose of diverting the attention of the authorities of the foreign countries, with which we have commercial transactions, appears to me to be completely illusory; because our exported stock will take on themselves to make known *urbi et orbi* that tuberculosis exists, rooted with a character of permanency, in the country. It is an illusion—pardon the comparison—alike to that of the handsome biped of the pampa, that hides its head behind the leaf of a tree or the flower of a thistle and is persuaded that no one can see it. I believe that this system may be qualified as a simplicity which cannot deceive any one; and therefore that it is completely fallacious to include in the law dispositions prohibiting the entrance of inoffensive tuberculous animals, when we have it disseminated in the country, as all the world knows.

To show that there is no necessity for slaughtering animals affected by tuberculosis, when this is not of a contagious character, I shall have to enter—and I lament it profoundly—on a purely scientific question which may weary the attention of the hon. members, as it is

tedious in itself and much more so when the exposition has to be made by one who does not profess science; but it is indispensable that I should do so, because on the results of the study of that question depends, in my opinion, the favourable decision which the solution proposed by the committee may receive.

First of all we have before us this question: is the tuberculin test, — which is the touchstone of the regulations of the Executive, — for the purpose of determining if an animal is affected by tuberculosis or not, infallible?

I may remind of an aphorism, maintained by Nocard and now generally accepted, that every animal that reacts to the tuberculin test has tuberculosis. There are cases, however, which show that the invariability of this rule is not admissible; and it will be enough for me to quote, amongst others, one that has occurred recently in our port, where an animal reacted to the test and was slaughtered, it being afterwards found that it was not affected by tuberculosis; it had a nail in the intestines.

The animal was slaughtered; as we have seen, without any object, without reason, because it is not proved that nails in the intestines form a contagious disease.

The fact is that the animal referred to had a reaction of such a nature that the official veterinaries declared it to be tuberculous. Why? Because the rule has been accepted as invariable, that every animal that reacts to the test is tuberculous.

Notwithstanding these cases, the generalization supported by Nocard has been accepted,

that every animal reacting to the test is really affected with that disease.

However, to appreciate the merits of the actual set of regulations,—which I must suppose is that which the Executive is determined to preserve in case the house should not establish in the law the article which the committee has proposed—I must point out that in those regulations a contrary proposition is established: that every animal that does not react shall have free entrance to the Republic. However, it frequently happens that animals that have generalized tuberculosis, that are already in a highly dangerous condition, do not react; the animals least affected are precisely those which react more strongly, and as the disease advances the predisposition to reaction begins to diminish; so that when it is found very much generalized the animal usually does not react.

But these things simply stated by me are of no value whatever; and I have therefore to appeal to authorities, as I shall now do, begging the hon. members will excuse me.

In the work recently published by Nocard and Leclainche, on microbial diseases in animals, we read on page 605 the following: «The numerous investigations made as to the application of injections of tuberculin in cattle, as a diagnostic of tuberculosis, in France by ourselves, and abroad by Bang, Lidtyn, Schuetz, Johne, etc... permit us to formulate the following propositions.» They then proceed to establish various propositions, amongst others that which I have just referred to, and on arriving at the 6th, they say: «In subjects of advanced tuberculosis —

phthisical in the true sense of the word,— the reaction may be feeble and even absolutely nil. The lack, it is added,—and this is one of Nocard's declarations--the lack of reaction does not necessarily imply the absence of tuberculosis.»

Professor Bang, of Denmark, who, after Nocard, and probably with Nocard, is the most distinguished and respected veterinary, in the world, expressed his opinion on this point in his communication to the Congress on tuberculosis held in Paris in the year 1898—and I wish to draw your attention to the fact that he is speaking of the latest experience regarding tuberculosis; he does not speak of antiquated matters; the resolutions accepted in 1895 and 1896 on this subject remain very much in the background.—Professor Bang said: «The worst is that in reality the cases are not few in which the tuberculin test fails to discover the presence of tuberculosis. Most frequently it is a question of old and insignificant deposits, mostly calcareous, and other cases in which the tuberculosis is stagnant, or even on the way to being healed,—I ask the attention of the house to these words:—«on the way to being healed» —«and that they are, nearly always, incapable of communicating the virus. But, as is known, there are also cases, unfortunately not very rare, in which the test does not provoke a reaction in highly tuberculous animals and consequently contagious in the extreme. This is the reason why it should never be neglected to have recourse to a clinical examination when treating of an animal which, without reacting, shows

symptoms which authorise the suspicion that, notwithstanding the test, it is affected by tuberculosis».

Respecting this point, Mr. President,—although I could read other very important quotations,—I shall limit myself to what I have already said, so as not to fatigue the house; because I think that, with the opinions expressed by the authorities I have quoted, it has been shown that the test does not always indicate that animals that do not react are not tuberculous, and that precisely the opposite occurs in some cases, unfortunately not very rare, that animals suffering from generalized tuberculosis, being thoroughly dangerous, do not react. And as these animals can be admitted, I believe I am justified in saying that a resolution which permits free entrance, perfectly free, for animals so very dangerous as those to which I refer, and orders the slaughter, on the frontier or in the port, of animals that are absolutely inoffensive, does not respond to any scientific principle.

But, respecting that disposition, there is an even more important question, and it is: that the test may be neutralized by fraudulent means, and that against such fraudulent measures there is no possible safeguard.

Every animal that, before being submitted to the tuberculin test, to the oficial test, receives an injection of the same liquid, ten, fifteen, or twenty days before, is guaranteed not to react under the action of tuberculin, even if it is suffering from contagious tuberculosis.

If, therefore, animals allowed entrance have been previously submitted to the action of tu-

berculin, and thus placed by the importers in a position to resist the test: what means has the government to control if they are affected or not?

It is answered that with the creation of the lazaret this danger may be prevented, inasmuch as the animals would remain in it more than a month, during which time the acquired immunity would disappear, and these animals when submitted anew to the test would react if they were tuberculous.

But, Mr. President, it is only natural to suppose that anyone who wishes to introduce fraudulently a tuberculous animal, and to this end renders it immune against the test before coming into port, will continue to keep up this immunity, an easy matter to compass by means of the caretaker of the animals in the lazaret itself. How could the government control the lazarets and prevent the men,—in a moment of negligence, whilst they are cleaning the animals, which may number two or even three hundred, as happened in September last year,—from making injections of tuberculin serum, when it is remembered that this operation can be accomplished in a second and is so easily made by persons who are always attending the animals?—It would be utterly impossible to exercise efficacious vigilance over these men.

The fact is, therefore, that the system enforced by the regulations positively confers a premium on fraudulent importers, to the prejudice of importers of good faith, and above all to the principal fine stock breeders of the country, who

generally import the most valuable animals. But to this I shall return later on.

It may be retorted, Mr. President, that these declarations lack authority, coming from me. Forseeing the observation, I shall cite perfectly qualified opinions. On page 607 of the work already quoted, of Nocard and Leclainche, it is stated that: «A previous injection of tuberculin serum confers to the animals a veritable immunity, so that they will not react again to a new test, if made within a month». This is what Professor Nocard says in his work, published in 1899, that is at a quite recent date.

Further, Professor Bang, before the Congress on tuberculosis held in Paris in 1898, stated the following: «Supported by experiments carried out at Tourebyville farm, I have drawn attention to the fact that many animals which, by reason of a typical reaction, were classified as diseased, did not react in the following year; and it has since been found that a large number of animals from the diseased section have ceased to react, after having reacted for several successive years. Although the failure to react in the beginning of the test after several years doubtless indicates, almost invariably, that we have to deal with a stationary or retrograde tuberculosis, this cannot be absolutely proved, as the failure to react may be the consequence of a very advanced and contagious tuberculosis.»

This quotation refers to the previous propositions; but further on Bang also says: «Although the tuberculin test gives relatively certain results when performed on animals which are kept quiet in stables or stud-farms, where they have

been accustomed to live, the result is doubtful when it is applied to animals that have been through a journey and are exposed in the markets, etc. It appears that under these circumstances many animals fall into an abnormal state, in which the faculty of reacting to the test diminishes, or disappears temporarily».

This authority, as we see, goes much further. Not only does he state that by immunity acquired by previous inoculation may the animals fail to react, but he goes so far as to declare that it happens that animals will not react if submitted to the test after a journey.

All the quotations and reflections which I have just made prove, in my opinion, that the tuberculin test is not always reliable, and that the diagnosis founded on it requires to be amplified, -- and here I appeal to the testimony of the doctors present, -- by clinical and especially by bacteriological examinations, which are the only ones that definitely and truly afford, whether with regard to men or to animals, positive security to the physician and to the veterinary that tuberculosis is present in its generalised and dangerous form.

There are, besides, other probabilities of the test not giving satisfactory results, as for instance, when the serum has not been well prepared or carefully preserved, in which case the animals will not react.

There exist, therefore, many sources of error, as we have just seen, in the application of the tuberculin test. Thus it happens that animals that do not react to the test are allowed entrance to the country, because they have been

previously prepared or because they are affected by generalised tuberculosis, or again, because the test has been badly applied. On the other hand, animals that react to the test are, without further proceedings, without any further examination beyond that, prohibited entrance and are to be slaughtered, although in many instances it may be question of animals of great value which in *the great majority* of cases are curable and not dangerous.

But I will go so far as to suppose, Mr. President, that the tuberculin test is infallible; that whenever there is reaction tuberculosis will always be present, and that whenever no reaction takes place there can be no tuberculosis. I then ask: is every animal that reacts to the test, every animal that has tuberculosis, dangerous? That is the question.

I answer no; for such a conclusion cannot be made categorically, and in the present state of science precisely the opposite might be said.

Until quite lately it was believed that there was only one form of tuberculosis; but recent investigations have shown that the disease presents itself under two completely distinct forms, distinguished as *closed* and *open*. The former offers no danger, whilst the latter is contagious and dangerous, and it is against this that we have to guard ourselves.

I shall quote several authorities in proof of this assertion. To begin with, I will translate to the house what the Medical Bulletin says, in an article signed by Grancher, one of the most eminent investigators on the subject of human tuberculosis:

«In the extra-parliamentary committee on tuberculosis, the second and third sub-committees, presided over by Mr. Brouardel, have voted unanimously that tuberculosis should be added to the list of diseases of *compulsory declaration*. I have to request that the Academy of Paris will deign to submit to the permanent committee on tuberculosis the following proposition: The Academy emits the vote that *open* tuberculosis be entered amongst the diseases of *compulsory declaration*».

The same Professor Grancher, in his communication of 1898 to the Academy of Medical Science of Paris, says the following:

«At last we know that there exists a *closed* tuberculosis, very frequently ganglionic, ossified, and even visceral, but whose bacilli are imprisoned in the tissues and therefore inoffensive; from which we deduce the consequence that these tubercules do not present any danger of contagion. We know, on the contrary, that a tuberculous person, who ejects or suppurates the bacilli, is dangerous, and that it is necessary for us to protect ourselves against him. *Open* tuberculosis is the enemy which it is incumbent on us to contend against incessantly».

Well, then: it seems to me that what I have just read from Professor Grancher's communication to the Academy of Medical Science in Paris, two years ago, in which he establishes categorically this distinction between *closed* and *open* tuberculosis, which is equally applicable to human beings and to animals, is sufficient to show that it is not possible for us to be

condemning blindly animals stricken by the sickness, irrespective of whether it be *open* or *closed*, whether it be dangerous or offers no danger whatever.

The article which the committee proposes therefore establishes this distinction, recommending that animals affected by the contaminating form are to be slaughtered, but those which do not show such characteristics, that is to say, those that present the closed form, that do not offer any danger whatever to our live stock, be allowed to enter. How?—Freely?—No, branded. And what does this brand signify?—It signifies that every person who sees the branded animal knows that it is liable, or predisposed to acquire open or generalised tuberculosis, if the necessary precautions are not taken to prevent it. It so happens that the treatment and probabilities of cure are precisely the same with respect to animals as with respect to mankind. Consequently an animal affected by closed or incipient tuberculosis may be cured; and what Nocard counsels with regard to this is that every person possessing an animal in danger of being attacked by contagious tuberculosis, should keep it in the open air and well fed, and not closed up in stables, by which means we may obtain a cure in the majority of cases.

But it may be objected that these cases, of animals which react to the tuberculin test and which have only closed tuberculosis, are but a few, and that it is not worth while to establish another rule of procedure for them. The authors which I shall take the liberty to quote, however,

lay down precisely that the greater part of the animals that react to the test have closed tuberculosis and are perfectly curable, and that those in minority are the dangerous ones which should be sacrificed.

Bang, in his report laid before the Congress which met for the purpose of studying tuberculosis, says, on page 253 of the minutes of the congress:

«There is every reason to make it known that it is not necessary to get much alarmed by the high figures of the reactions caused by tuberculin experiments, because an immense majority of the animals classified as being attacked are only affected in a very insignificant degree, having only a few nodules in some lymphatic gland. These animals, as T. H. Smith very well expresses it, *are infected but not diseased*. In many of them the disease never becomes developed; it remains stationary for years, until it may be said to cure itself, the nodules contracting and becoming calcareous. I know of many precise cases of animals which previously had reacted typically, but five years afterwards, in the slaughter house, only showed some few small calcareous particles with bacilli in the lymphatic glands. It is evident that these animals are completely inoffensive; they are not capable of propagating the contagion and no reasonable person need have any fear of their milk or meat.»

It will be seen then, that the committee has based itself on sound scientific antecedents for the purpose of establishing this distinction.

In Belgium, regulations were decreed, with the object of mitigating the tuberculosis in the interior of that country, respecting which Professor Bang observed: «These regulations were put in force on the first of January 1896, but already in August 1897 it became necessary to modify them considerably; it was recognized that the prescriptions were too onerous, not only for the owners of the stock but also for the state».

In the report addressed to the king, on proposing the new regulations, the Minister said: «The numerous tests made in the course of year 1896, by means of tuberculin serum, have proved that the spread of bovine tuberculosis in Belgium is such that the extermination of the affected cattle, within a relatively short time, could only be realized by causing, unnecessarily, the very greatest embarrassment to a large number of agricultural undertakings.»

«On the other hand, the slaughterings, consequent on the application of the tuberculin test, have shown that in the immense majority of cases—I call the attention of the house to this, which is printed in italics—*the tuberculous animals were only slightly affected and incapable of propagating the disease.*»

«Under these conditions, the sacrifice of these animals within a certain date, as a fixed regulation, is unnecessary. Nearly always it will be sufficient to isolate them, because nothing prevents the owner from getting all the possible benefit he can out of them, as long as they do not show certain indications of the disease».

We thus see, Mr. President, from what has been read, that many animals, at present destroyed, might be easily saved from destruction and utilized by their owners; and this applies especially to animals of great value. There are cases in which animals, that cost a thousand guineas, more or less, have been slaughtered, notwithstanding that no signs of generalised tuberculosis were found in them.

If the bacteriological and clinical examinations should show that they are not affected by advanced tuberculosis, that they do not eject phlegm, or do not suppurate their bacilli, as these authorities say, it means that those animals are in a condition to be allowed entrance to the country; it corresponding to the owner to take due precaution that they cause no prejudice.

Those animals, we have seen, may pass after a certain time from the closed to the open form of tuberculosis, thereby becoming dangerous; or may pass from the closed form to a complete cure of the disease.

Consequently, the owner should be allowed the necessary freedom to judge as to the advantages or peril that exist in one or other case. If the animal is no longer ill, the owner has no reason for getting rid of it; if the disease increases, until it becomes dangerous, the owner will have it slaughtered, because it is to his interest to do so.—What I ask is that the owners be left to do whatever suits them best, seeing it has been shown that tuberculosis is not always a dangerous disease.

Bang, in another paragraph, states: «At the same time that the measures recommended should be taken, tending to exterminate as quickly as possible all animals affected by generalised tuberculosis, being veritable propagators of contagion, we ought to compel owners to combat the tuberculosis in their herds, by separating the diseased from the healthy stock. According to art. 14, every owner of cattle may be authorized to apply the test to all animals on his farm, (excepting those in course of fattening), with restriction of submitting to the present decree, and on condition of not selling, except for consumption, those that show the characteristic reaction of the test.»

«The test would be made for account of the government, if the tuberculosis had been declared by the establishment, and in the opposite case for account of the proprietor. After the application of the test, the owner is bound to isolate the animals that have reacted, and if he prefers not to sell them for consumption (under the conditions previously indicated with regard to indemnization) he may continue to utilize them, subject to the conditions established in the art. 19 of the old regulations. There is, however, this great difference between the new conditions and the former ones, that the owner is not obliged to slaughter the animals of the affected section within the year; *he has the right to keep them as long as he pleases* if they do not *show the clinical signs of tuberculosis*».

And Prof. Bang continues — in pages which I shall not read, because it would be an abuse — to establish the manner in which the owners

should exterminate tuberculosis on their farms, separating the sound stock from the diseased.

Professor Nocard, during the visit he made to us in the year 1898, counselled various breeders who had applied the tuberculin test to their pure bred stock, some of whom had the intention of slaughtering the animals which had reacted, to separate the diseased animals from the healthy; and «when these cows, he said, have calves, have them brought up on boiled milk, or with milk from healthy cows, and in this way you will be freed from the disease». The owners followed this counsel, and after two years had passed applied the test to bulls bred by the tuberculous cows, but brought up in the way indicated by Professor Nocard. The whole of the tests carried out have given the result that these animals do not react to the test, and are perfectly sound.

We therefore see that there are easy methods of preventing the dangers of tuberculosis, without necessity of appealing to the extremes of the regulations decreed two years ago, and which the Minister of Agriculture is defending, I suppose, through a benevolent spirit towards his predecessor who dictated them, as I cannot believe that his opinions on the subject are very deeply rooted.

There is another point, which it is equally convenient to set forth with precision. It is that tuberculosis is a curable disease, absolutely curable, and, according to Brouardel, the most curable of the known chronic diseases.

In a recent work, in which the ink is still fresh and whose title is «**Tuberculosis is curable**» by Professor Ribard of Paris, it is said on page 5,

when referring to anatomical proofs of the cure of tuberculosis: «There are palpable proofs, even to our unaided eyesight, of the spontaneous healing of tuberculosis; and they are to be found in all works on anatomical pathology. The cure is very common; and it is easy to convince oneself of the fact by looking over the records of the post-mortems of the hospitals, of the morgue, and above all, of the asylums for aged. In Bicêtre, Natalis and Guillot, there have been found old and cicatrised tuberculous lesions in old people, who have died from all kinds of diseases excepting tuberculosis itself, in a proportion of 60 per cent.

Brouardel, the renowned Professor of the Morgue in Paris—which, as the hon. members are aware, is the place where the corpses of all persons who die from accidents, drowning or poisoning, are taken—has found old and healed tuberculosis in 50 % of the bodies examined.

In the Saint Antoine Hospital, Professor Letulle also found the same proportion of 50 %, and remarks: «These figures, from the similarity of the result, are very eloquent. They show us clearly that half of the people reputed sound and not tuberculous, that die from fortuitous circumstances or old age, have at some time of their lives been affected by the disease, but have been cured.»

«There are then, many affected and also many cured; for one half of the human beings have tubercles, but they bear up against them and impede them from becoming prejudicial, even without having any doubt of their presence. Such is the

really incontestable significance of the results of the post-mortems».

Professor Grancher, in the Review of Hygiene states that: «Each disease has its way of conveying contagion, and, when this manner is once known and determined, it is possible, by some simple but radical measures, without useless molestation and doing no more than what is strictly necessary, to obtain most marvellous results. It is important not to go too far beyond the limit, and not be more «microbian» than necessary; and it is not one of the least interesting things to assist in the simplification of prophylatic measures, in accordance with progress of science.»

As regards tuberculosis, he adds: «There is no disease of which the bacillus is better known, better studied, and whose contagion, in its various forms, is more scientifically established. Consequently it is necessary not to wander from the right path, but to prescribe really efficacious measures.»

Finally, he says: «The physician should direct his attention to modern ideas as to the curability, not exceptional but frequent, of tuberculosis, and to the contagion. Certainly the curability, even of cavernous phthisis, was admitted by Laennec, but as exceptional. We know now, however, that in our tissues tuberculosis has a natural tendency to spontaneous cure, by encystment and fibrous transformation. We know that this natural and spontaneous cure by means of fibrous encystment, regarding which I have been so insistent, is very frequent in many localized cases of tubercu-

losis, even pulmonary, and that,—it being understood that the diagnosis must be made at an early date and an energetic treatment followed,—this cure will in time become the rule.»

To conclude with this point, I shall take the liberty of reading a paragraph from the inaugural speech, delivered before the Congress of tuberculosis at Paris, by Professor Nocard. He said: «Far from becoming disheartened, we should persevere in the campaign in which we are engaged; it is necessary not to leave off repeating in all forms, at all times and in all places, that tuberculosis is a preventible disease, seeing that in the immense majority of cases it is due to contagion, and that it is possible and even easy to prevent the effects of this contagion.»

«I do not dare to hope that physicians will subscribe to this formula; but I am convinced it is applicable to tuberculosis in mankind as well as in animals. For one and other the principles are the same; only the means of putting them into practice vary.»

«As regards bovine tuberculosis the question is definitely settled. It has been proved in a clear manner that the isolation of the affected animals is sufficient to arrest at once the progress of the disease; and this isolation is of easy realisation, thanks to the tuberculin, which allows us to make a diagnosis of the disease with marvellous precision, even though it may not show itself by any exterior symptoms but only consist of recent lesions».

As may be seen, Mr. President, all these authorities speak as a matter of course of the cura-

bility of tuberculosis, and I believe this to be a fact that is no longer discussed in any part of the world.

This serves to show, in addition to other propositions which I believe I have previously proved, that the proposed measure of slaughtering animals on the frontier is excessive, inasmuch as the greater part of the animals that react to the test may not be contagious or offer any danger, and the great majority of them may be completely cured and all the requisite precautions taken, when their sickness is known,

The measures adopted in the regulations framed by the executive greatly prejudices the interest of our live stock business, as I shall show, and it is for this, precisely, that the committee has insisted in maintaining their articles.

It is well known that the proprietors of all the leading stud farms have to maintain their importance by acquiring nearly every year, or at least every two years, valuable specimens from the United Kingdom; but it happens, with great frequency, that animals that in England have not reacted to the tuberculin test, notwithstanding that the application has been made by famous english veterinaries and with tuberculin serum procured from the very Pasteur institute itself, arrive and react in Buenos Aires. Such was the case with one imported in the latter part of last year by Mr. Mariano Unzué, which was sent out from England by a friend, who had the animal examined by the veterinary employed by the then Prince of Wales at the Home Farm at Sandringham.

It was, as I have stated, tested with tuberculin obtained from the Pasteur institute in Paris and did not show the slightest reaction; and it may be remarked that the owner of this animal was no less a personage than Lord Powell, who cannot be suspected of fraud. Well then, this animal arrived at Buenos Aires and was found to react to the test and was slaughtered, being really tuberculous. This shows us that the test made in England was incorrect, notwithstanding the precautions taken; and that the purchasers of animals have no guarantee when acquiring specimens not reacting in England, because they may react here.

They cannot even insure their animals, on account of the premium being so high; it is 25 %, and in the case of animals that cost a thousand guineas, for example, this represents a considerable expenditure. Therefore the fine stock breeders find themselves obliged to abandon the custom of procuring their sires directly from Europe,—which, being very much to the interest of the country, the powers should encourage instead of oppose,—and they decide to purchase them here in the market, paying extraordinary prices,—as happened with a bull that cost in England £ 400 and was sold here, in auction, for 15,000 dollars paper currency (£ 1300). This prejudices enormously our stockmen, because they do not all of them dispose of such means as Mr. Leonardo Pereyra, who purchased the animal I refer to.

But then: have the estancieros any greater guarantee of acquiring healthy animals under these conditions, purchasing them in Buenos

Aires instead of buying them in England? By no means; because they are exposed to the risk of purchasing animals whose immunity has been previously secured by fraudulent means by the importers. And this is now quite a common thing.—Last year, in one of the auction marts of this city, I heard it said by a well known importer, who had a bull slaughtered although it was afterwards found not to suffer from generalized tuberculosis, being therefore inoffensive: «As far as I am concerned, they shall not slaughter another, for none that I may import will react; they will all be prepared»—and this person has taken measures to secure that none of the bulls he imports may answer to the test.

Knowing these facts, it is only natural that I should propose the article in the form that I have explained: permitting the importation of animals which, although reacting to the test, are found not to be dangerous, on being subsequently submitted to a clinical and bacteriological examination, and prohibiting the introduction of those animals which by such examination are proved to be really dangerous.

It seems to me that we thereby place ourselves in a reasonable, in a medium position. The proposal by no means implies absolute liberty of introducing all kinds of animals, as it has been asserted. No, Mr. President, it is an intermediate term, which consists in verifying if the animals are dangerous or not, allowing entrance to the latter class and rejecting those which belong to the former.

I entertain no illusions as regards the favou-

rable decision which the chamber may accord to the article. Ever since I first presented this project of law, it has been asserted, and repeated until it has become wearisome, that it is a great error to admit tuberculous animals into the country; and, as is well known, statements that are repeated a long time are apt to become finally accepted without discussion,—it is a species of suggestion against which there is no defence, against which all reasoning is shattered.—I feel, moreover, sure that the Minister of Agriculture will, with his recognized talent, reply unfavourably to the exposition that I have just made on behalf of the committee. But, whatever may be the lot that awaits this article, the committee of agriculture and the author of the project have sustained and inscribed their opinions on this important question, in which such great national interests are centred.

(Hear, Hear.)

MR. PRESIDENT:

I shall reply with all possible brevity to the brilliant speech of the Minister of Agriculture in the last meeting, to the one pronounced by the member for Tucuman, and to that which we have just heard from the member for Mendoza.

I believe that I established in a thoroughly categorical manner, at the beginning of my exposition in the last meeting, that the committee in no manner disputes the necessity, the great convenience of making every possible effort to extirpate tuberculosis from the country, although it do not cause great evil, and that the committee, as well as the author of the project under discussion, would have the greatest pleasure in seeing that the executive power would strenuously endeavour to frame a general scheme for its extinction, attacking it with equal energy in the interior of the country and on the frontiers of the Republic. What the committee is most decidedly opposing are those fractionary, isolated measures, which cannot produce any definite result for the purpose in view.

All the argumentation made by the Minister in the last session is reduced almost exclusively to show the great importance which in all parts of the world is attributed to that disease,

in both man and beast. In this manner it has been very easy for him to break down an open door, coming out triumphantly in a question on which no one has maintained a contrary opinion, for the committee had declared beforehand that it was in complete accord with the Minister on that point.

The member for Tucuman only reproduced the very same arguments that the Minister had used, defending ideas on which we are all in complete accord, and which I, from the first moment, declared it unnecessary to discuss, as we were all convinced of the necessity of taking the measures which they counsel.

As regard the arguments brought forward by me, there has been absolutely no reply to them, in the speeches of the Minister and of the hon. member for Tucuman. So much so that, reading them in the phonetic version, they give the impression that my exposition had been pronounced after the speeches of these gentlemen; because, as a matter of fact, I have refuted the arguments produced by them at a later date, whilst they, on the contrary, have not refuted any of the arguments made by me before they began speaking.

The member for Mendoza has adduced reasons which might seem to show that I had fallen into an error in some of the arguments I made use of for answering those remarks.

What I have maintained is that, in the great majority of cases in which tuberculosis appears in its incipient form, be it in man or in animals, it is a curable disease.

I have sustained this by quoting authorities whose opinions are beyond dispute; having quoted Grancher, Bang, Nocard and other eminent authors of important works on these matters. So that, if I have been in error in making the assertion which the member for Mendoza finds inexact, I have been mistaken in good company; and, however much I may respect the opinion of the hon. member, he must allow me to adhere to that of those masters of science, who must be recognized as such by medical men as well as by those who are not.

I have quoted the results of the post-mortems made by Brouardel in the Morgue, which show that 60 % of the corpses operated on by him had signs of healed tuberculosis. I also quoted the statistics of the hospital Saint Antoine and that of the Asylum for aged persons, also in Paris, from which it results that 50 % of the individuals who die of ordinary diseases show clearly in their corpses the proofs of healed tuberculosis. This proves the enormous proportion of curability in this dread disease.

In addition to this, in a work which I have obtained within the last few days, having just arrived, and in which, as I said, the ink is still quite fresh, Professor Ribard quotes statistics of the results obtained at the sanatoriums in Germany and France, in which the sole object is that of curing tuberculosis. According to these statistics, of the number of those who enter these sanatoriums with the object of being cured— who we may suppose do not do so until the disease is already advanced— only 6 per cent die, 28 % are definitely cured,

and the balance remain with the tuberculosis in a stagnant condition for the rest of their lives.

Thus, the tuberculosis, instead of having a tendency to increase and to lead fatally to death—as the member for Mendoza has asserted—is on the contrary on the way of becoming every day more curable.

These data, I repeat, are not mine, but taken from the latest works; they are the opinions of the most reliable authors on the subject.

It cannot, therefore, be affirmed, in such a categorical manner as the member for Mendoza has just done, that the cure of tuberculosis is an illusion, precisely at the moment in which we see how frequently it is being cured.

I have quoted the opinions of Bang and of Nocard, as to the cure of tuberculosis in animals; and, aided by the authority of these professors, I have maintained that the great majority of animals that react to the tuberculin test are suffering from closed tuberculosis, are harmless and can be cured; as shewn by the large proportion resulting from the post-mortems, in which unequivocal proofs of past tuberculosis were found. Still more: these professors indicate the means of preventing contagion, by separating the affected animals from those that are not, and state that by so doing the animals can be made profitable, under the conditions recommended by them.

The member for Mendoza states that it is not easy to distinguish the closed from the open tuberculosis.

I believe that the opinions I have quoted at the last meeting are decisive. I read paragraphs pertinent to the subject, from the paper presented by Professor Bang to the Congress of tuberculosis at Paris in the year 1898, in which he asserts that closed tuberculosis can be distinguished from open, by means of a clinical and bacteriological examination. This is being done in Denmark, by the advice of Bang himself.

But it is superfluous to continue this discussion of the technical question proper. I wish, however, to call attention of the house to an argument which, from forgetfulness, I did not bring forward the other day, and which it is convenient that the hon. members should bear in mind: it is the great danger that would arise to the Argentine Republic if a law was sanctioned prohibiting absolutely the importation of tuberculous animals, as is now done, because the countries with which we have commercial relations would take the same measures with ours.

Only last year—and I lament that the Minister of Agriculture is not present, to furnish us with the complete data—I understand, the British Minister approached that department and remarked that if the Argentine Republic continued rejecting indiscriminately the tuberculous animals sent out from the United Kingdom, as was being done, it would be exposed to similar measures being taken by the British government against the steers exported from this Republic to England, and that the tuberculin

test might also be enforced by that government on cattle shipped from here.

I wish to point out all the importance of this matter. It cannot escape the discrimination of the house that immense harm would be caused to our exportation, should the time arrive when we were obliged to apply the tuberculin test to the 80,000 animals which are annually exported to England; an exportation which, if now suspended on account of the foot-and-mouth disease, will, it is to be hoped, be resumed in the future. Therefore, it is not a purely theoretical discussion on which we are engaged; it is a practical question of the greatest importance, and I think it is incumbent on us to give it due attention.

The member for Tucuman remarked, as also the member for Mendoza has just done, that tuberculous animals, even of the closed form, are highly dangerous, because they would not be able to beget anything but tuberculous progeny, or if not tuberculous, at least predisposed to it.

The member for Tucuman did not go so far as the member for Mendoza; but he, nevertheless, said that tuberculous animals would beget predisposed offspring.

As regards this predisposition there is a great deal to be said, — certainly I am not going to do so now — but I think that the member for Tucuman cannot treat as settled a question which yet remains undecided.

Formerly it was believed that diseases such as tuberculosis were hereditary; but now it is known that, being of microbic origin, it can-

not be so. Only exceptionally can the transmission be made in those cases when there is tuberculosis of the placenta, but in no other way can it be transmitted to the foetus.

When the sire has tuberculosis of the generative organs, he may transmit it to the mother but not to the foetus directly; there is, strictly speaking, no hereditary tuberculosis nor predisposition either; at least, it has not been proved scientifically, because many authorities on the matter claim that the predisposition is an accidental condition of the organism, that is, an accidental state caused by the organism being debilitated by some cause or other, by disease or functional alteration.

Therefore, if the hon. members desire to prevent the importation of animals that might beget infirm produce, logically they should slaughter all those that might have, not only tuberculosis, but any other disease or impediment, and therefore might beget organisms lacking vigour, and being subject or predisposed to all and every plague.

The question, Mr. President, has not been fully determined in the sense of the ideas which I have set forth, but neither has it been settled definitely in the other sense.

So that, taking departure from undisputed conclusions of science, we shall have to wait a long time before we are enabled to introduce into our legislation this doctrine of the heredity or of predisposition; consequently we should abstain from attempting it. But I do believe that we ought to incorporate in our legislation the results of scientific conclusions which in the

present day leave no room for doubt; and for this reason I desire that it should be stipulated, in the law relating to sanitary precautions, that animals affected by closed tuberculosis,—declared by Bang, Nocard and many other of the authorities I quoted the other day, to be absolutely inoffensive,—shall not be slaughtered, or treated in the same manner as animals that may produce contagion.

Recapitulating, Mr. President, the arguments I have brought forward,—which I believe have not been answered, or at least have not, in my opinion, been answered in an effective manner—I shall take the liberty of concreting my contention, as I should wish to have my own opinion and that of the committee clearly expressed as regards this point, and also with respect to the categorical statements I have made and which, I repeat, have not been discussed or disproved successfully.

I have maintained:

Firstly: that the tuberculin test, although infallible in animals not prepared against it, does not indicate tuberculosis when they have previously been rendered exempt by former inoculations.

Secondly: that tuberculosis may be *closed* or *open*, being inoffensive when closed and contagious only when open.

Thirdly: that the *great majority* of reacting animals have closed tuberculosis, and consequently are not dangerous.

Fourthly: that a careful clinical and bacteriological examination will indicate the distinction between the one form and the other.

Fifthly: that closed tuberculosis is almost invariably curable, by means of a course of open air treatment and generous feeding.

Sixthly: that the slaughter of tuberculous animals should be limited to those that show danger of contagion, excluding from this measure those that are inoffensive and curable.

Seventhly: that, following the example of all civilized nations, the executive power should prepare a complete scheme for the extinction of tuberculosis throughout the country, and not remain content with isolated and inefficacious measures.

Mr. President: the chamber will resolve what it may consider most convenient; but, whatever the result of the voting may be, I wish to repeat what I said on presenting my first report:—the committee has proved that it has occupied itself thoroughly with the question, that it has studied it very carefully and understands it completely, and that it has presented to the house no improvised opinions.

(Hear, hear.)

The following petition was addressed to the Provincial Government of Buenos Aires, and, on being taken into due consideration, produced the effect that the dispositions relating to the compulsory application of the tuberculin test to dairy cows were derogated. This resolution of the Government aroused a vivid opposition on the part of the medical men; and the directors of the «League against tuberculosis» initiated a discussion by means of two notes, published in the papers. These are reproduced here with the sole object of disclosing the scientific arsenal with which the author of that petition has been attacked.

Buenos Aires. 12th May 1902.

To His Excellency the Governor of the
Province.

Your Excellency:

The Argentine Rural Society, over which I have the honour to preside, has received a considerable number of complaints, protests, and requests for aid against the resolutions of the General Direction of Salubrity of Buenos Aires, which orders that within a specified term, and subject to severe penalties, the tuberculin test is to be applied to all dairy cows; and the

Society has therefore resolved, after a careful study of the question, to address your Excellency, requesting the derogation of the order of 16th December 1899 and of the additional decree of 27th May 1901.

Many reasons contribute to make the measure we request indispensable. There are inconveniences of constitutional character, it being an established principle that no one is obliged to do that which the law does not ordain, nor can constitutional guarantees and rights be restricted by the departments of public administration, not even by the Executive itself, unless based on laws which regulate the exercise of those guarantees and rights.

It is unnecessary, in this note, to enter into discussion respecting the scientific principles of an exaction which is evidently not based on definite conclusions, and which is not applied in the most enlightened countries where the service of public salubrity disposes of greater resources and of a far more perfect organization. It is sufficient to draw attention to the difficulties of the successful application of the tuberculin test, in the conditions under which the dairy industry is carried out in our country.

The primary condition insisted on by veterinaries is that of housing, so much so that the application in the open air has been prohibited, in view of the errors to which it is liable on account of exposure, and which must necessarily occur in the Province.

Next, there comes the impossibility of taking the temperature, six times at least, of the hundreds of cows existing in our dairies, the iden-

tification of each cow and the keeping, with indispensable minuteness, the complicated records which would show the thermal range of each one; then again, the difficulty of providing the numerous and capable staff required for the operation, the control as to the correctness of the certificates issued, and the proper destination of the animals declared to be tuberculous. All these are difficulties whose sole mention shows the impracticability of the order to which I refer.

The special committee, charged with the presentation of this request to your Excellency, are prepared to supply the very fullest explanations which may be required on the subject, and will, I feel certain, convey to your Excellency's mind the conviction of the necessity of immediate derogation of the order in question. Your Excellency may accept as a perfect certainty that, without benefiting public health, the measure referred to only serves to authorize abuses of every kind, making still heavier the burden that already weighs on this great industry, which, being of but recent growth, deserves and doubtless will receive every assistance on the part of your Excellency.

I salute your Excellency respectfully

EZEQUIEL RAMOS MEXÍA

1903

Buenos Aires, 16th May 1902.

To the President of the Argentine Rural
Society

Ezequiel Ramos Mexia, Esq.

The Argentine League against tuberculosis has received information that the Executive Power of the Province of Buenos Aires, in accordance with the arguments adduced by your honourable association, has resolved to derogate the order and corresponding decrees referring to the application of the tuberculin test to dairy cows.

This League, being interested in all work relating to the scientific motives which caused its formation, desires to know the grounds on which the opinion of the Rural Society was based, and, through my intervention, has the honour of addressing the President with the object of requesting him to make them known.

I beg that the President will excuse the trouble, and accept in advance the thanks and salutation of the Argentine League against tuberculosis.

Samuel Gache

Benjamin T. Solari, Sec.



Buenos Aires, 19th May 1902

To the President of the Argentine League
against tuberculosis.

Doctor Samuel Gache.

In order to reply to your note, in which you state your desire to be informed of the reasons by which the Argentine Rural Society was actuated when soliciting from the Government of the province of Buenos Aires the derogation of the dispositions which made the application of the tuberculin test obligatory as regards dairy cows, it would have been sufficient for me to have forwarded to you a copy of the note in which the governmental resolution was requested. The President would have found in it, very briefly expressed, as is necessary in a document of this class, the motives which induced our attitude, in which the measure, intended to prevent abuses which were daily being committed to the great prejudice of stock-men, was urgently requested. But with the permission of the President I shall, in addressing the League against tuberculosis, amplify the reasons given in that communication, so that the attitude assumed by the Argentine Rural Society may be clearly set forth, and that there may be no reason to suppose that the association, only giving heed to interests of practical order, holds to old and obsolete practices, disdaining evident progress

and obstructing the action of philanthropists in their laudable efforts to alleviate human affliction.

First of all it is convenient to define the problem. Why is it desired to apply the tuberculin test to the half million of dairy cows which, according to trustworthy estimates, are held in the province of Buenos Aires?—In order to prevent the propagation of tuberculosis in mankind, by means of the milk of cows affected by that disease;—the answer can be no other. Then it occurs to us to ask:

Is it definitely settled, in the opinion of the professors and scientific bodies of universal renown, that cows suffering from tuberculosis transmit always the disease to human beings who drink their milk?—No! The belief is widespread that this transmission only happens when the mammae are affected, a fact of rare occurrence that is not indicated by the thermal range of the tuberculin test, which does not denote local infection, but a general condition of the organism, and, although the majority do not agree with him in his theories, the great Koch has categorically denied, before the Congress in London, the identity of the two forms.

This data alone suffices to show that the scientific basis for the alleged necessity of the test is far from being an accepted truth; and so long as it is not, the Argentine Rural Society has the right to request that material losses shall not be caused, by measures which certainly are not indispensable and, further, may prove to be perfectly useless.

This leads to another question:—Has it ever been shown experimentally, as requisite in work deserving confidence, that the milk of the cows in Buenos Aires really propagates tuberculosis? If this fact has been proved, the Argentine Rural Society does not know it; so that the League, which occupies itself so much in spreading abroad knowledge of this class, would confer a signal service by communicating it.

The province of Buenos Aires maintains a vast health department, in which is included a bacteriological laboratory, and has established an analysis tax which is paid by creameries and dairies. Being possessed of such elements and means, it could have, and ought to have framed demonstrative statistics, based on the samples of milk examined; and then only, in the case of having found that a considerable proportion of these samples contained the bacilli of tuberculosis, would the order and decrees of 16th December 1899 and of 27th May 1901 have been justified by a reasonable cause. I ask then: do such statistics exist?—And, in the affirmative case: do they deserve credit?

Let us suppose, however, that the milk from those dairies were really full of these bacilli and that they affected those who drank it. Even in this supposition, the Argentine Rural Society does not recognize the efficacy of the compulsory tuberculin test. It is well known that the injection does not produce any reaction in the majority of cases when the disease is far advanced, *open*, as the specialists call it; and few persons who have studied such matters are ignorant of the fact that the reaction is often

the more typical when the dreaded infection is most incipient, from which we may deduce that the measure is utterly useless in the dangerous cases, in which a safeguard is most needed, and only efficacious when there is no danger of contagion, when the disease is still under the form of *closed tuberculosis*.

If the state of affairs requires energetic and violent prophylactic measures, the compulsory application of the tuberculin test is in every sense insufficient; if it does not require it, it becomes a useless trammel, another burden on a new-born industry, only imposed by imaginary hygienic requirements.

The derogated obligation, in addition to being onerous and useless, is also unscientific and impracticable.

I venture to bring forward the first statement backed up by the teachings of Professor Nocard, the principal promoter of the application of the tuberculin test to cows, who in his instructions contra-indicates the operation in those fed on pasture, on account of the numerous errors to which it leads, and insists on a previous housing of at least twenty-four hours. To prescribe, then, the application of the test in a country where all the cows live on pasture and in which there exist not the means of housing, is to openly violate the most elementary technical precepts, and to ignore the teachings of masters in the art.

That the operation is impracticable, does not even admit of discussion. It is necessary to take the temperature at least six times: twice, before the injection, and four times on the fol-

lowing day; and this must be done with each of the two or three hundred cows to be found in the majority of the farms, identifying each of them and keeping a record, in such a minute manner as not to permit of the confusion of one with another, the consequence of which would be the slaughtering of the sound and the retention of the diseased;—all this in open-air pens always exposed to changes of weather, which may nullify the action of the tuberculin, not allowing the verification of its effects nor the repetition of the test, so long as the consequent immunity lasts. It is certain that whoever attempts to apply, in this country, the processes employed in Europe, with the idea of adapting them to our surroundings, does not know the practice referring to our live stock, so peculiar and so different from that of Europe; and he cannot even imagine the insuperable difficulties which oppose it who has not personally striven to implant them. What is easily done in a commodious cow-house with twenty or thirty beasts, becomes impossible in a herd of two or three hundred, no matter how tame the animals and how capable the operators may be. Add to all this, the extreme scarcity of competent practitioners, the absolute impossibility of controlling the correctness of the proceedings and of avoiding impunity in their abuse, and it will be seen how far illusory, it might be said ingenious, is the hope of obtaining any advantage by means of the enforced application of the tuberculin test to dairy cows.

But, allowing that it were efficacious and advantageous, that would not resolve the hygienic

problem; because, if on one hand those that react to-day may recover to-morrow, on the other, those that were sound on the eve may become diseased, so that, if the test is not repeated with the required frequency, little or nothing will have been obtained by this single test insisted on. Besides, according to the annulled regulations, the animals which result condemned must be retired from the dairy and placed on pasture, for future consumption:—but how, and by whom, is all this to be controlled?—If there are many cows infected, there is no means of observing them; if there are few, as I suspect, then . . . it would be the case of Shakespeare's comedy: *Much ado about nothing*.

We must guard ourselves against everything. Doubtless tuberculosis is a great evil, but it is not the only one, especially for business men, to whom the excessive zeal of our tutelary administration may do still greater injury. It is well to keep a close watch on the harmlessness of articles of food, but it is also well to allow the hen to lay the golden eggs in peace. This is what the Argentine Rural Society is striving for, and, being convinced that the annulled measures would not in any way improve the condition of the unfortunates destined to be victims of the dread disease, but only serve to aid great abuses at considerable material risk, has therefore applied to the government of Buenos Aires for that which it, certainly very happily inspired, has conceded without delay.

Having thus complied with the request of the League which you so worthily preside over, I

have the pleasure to offer you the profession of my highest consideration.

Ezequiel Ramos Mexia

Buenos Aires, 26th May 1902.

To the President of the Argentine Rural
Society

Ezequiel Ramos Mexia, Esq.

I have the pleasure to acknowledge receipt of the note of the President, dated 19th inst., in which, with the greatest condescension, he communicates to the association over which I preside, the grounds on which the Argentine Rural Society based its petition to the government of the Province of Buenos Aires, for the derogation of the regulations which made the tuberculin test compulsory for all dairy cows.

The Directive Committee, greatly obliged for this complaisance, has charged me to transmit to the President the remarks that your courteous communication has suggested.

The arguments, on which the Argentine Rural Society has based its opinion, require to be examined and discussed according to the light of present scientific knowledge, and the League cannot, nor should not allow some of them to be passed over in silence; because if these were to become a common belief, if would, perhaps, be difficult later on to root them out of public

opinion, thereby causing detriment, not only to the health of the population, but also, and in a marked degree, to the interests of our live stock.

Let us examine these arguments in their order.

1st.—The derogation of the dispositions relative to the tuberculin test was called for «to prevent abuses which were being daily committed to the great prejudice of stock-men».

Certainly, it must be acknowledged that a numberless series of abuses have been committed, thus contributing to the failure of the operation in practice. Notwithstanding that the order of 16th December 1899 stated, in the 3rd article, that the Tuberculin test could only be applied by veterinary surgeons, and that the 1st article of the additional dispositions of 27th May 1901 prescribed that the injections could not be made except by qualified veterinaries or persons authorized by the Health Department, classifying those performed contrary to this rule as *null and of no value whatsoever*, the sanitary authorities not only authorized incompetent persons, in some cases, but also never controlled the operations performed, notwithstanding that its own veterinary department had requested it to do so on several occasions. It is not to the point to mention here the irregularities of every class committed by the test operators, because they are well known to every one.

The tuberculin test, in the way in which it was applied in the province, could not continue in the form established, and if it could not be made practical and effective it was better to abolish it. So, therefore, looking at it in this

light, the Argentine Rural Society, in petitioning for the derogation referred to, proceeded opportunely, although it would have been also in a position to demand that the violated orders and dispositions should be properly carried out.

In fact, the decree of derogation says: «that the measures put into practice in the province, for the purpose of carrying out the tuberculin test, are not in accordance with the teachings of science, nor adequate to the most elementary requirements to insure correct results.»

2nd.—«Why is it desired to apply the tuberculin test to the half-million of dairy cows which are held in the province of Buenos Aires?» enquires the President; and in continuation answers himself: «in order to prevent the propagation of tuberculosis in mankind by means of the milk of cows affected by that disease.»

It is not only to prevent the transmission of bovine tuberculosis to man that the tuberculin test is applied to dairy cows. The question of the test on cattle, of which the testing of dairy cows is only a part, should not be looked at from the sole point of view of the possibility of a transmission to the human race, but also under another phase of great importance: that of the pecuniary interests and future of Argentine stock, of which the Rural Society is so zealous a defender.

Bovine tuberculosis constitutes a real danger for Argentine stock breeding. Unknown, until a few years ago, in the creole stock, it has spread throughout the country since the introduction of Durham cattle, and continues to increase

from year to year, as is shown by the records of the slaughter houses of the capital.

It cannot be doubted that bovine tuberculosis causes losses to stock breeding. (1) Even if they are not yet very considerable, it is necessary to take serious measures to prevent the propagation of this disease, and the very slight proportion existing in our stock, places us in an excellent position to combat it effectively. Therefore the application of the tuberculin test to dairy cows is also a necessity, so as to prevent the diffusion of the disease amongst cattle, constituting a measure of real advantage to farming and stock breeding.

It is acknowledged that animals affected by tuberculosis die and are unproductive in the working of the business. A tuberculous animal during a certain time consumes food without benefit, and produces less milk.

In addition, bovine tuberculosis can be transmitted to swine, especially to those reared on waste-products of creameries, as is irrefutably shown by statistics and observations carried out in all countries, as well as in the Republic.

The diffusion of tuberculosis in cattle causes losses in the hog business, and this reason alone should be sufficient to incite the public powers and the stock-men themselves, with the object of preventing the spread of bovine tuberculosis; and in this respect the application of the test to dairy cows constitutes an excellent measure.

(1) Siedamgrotzky, in a very minute record, shows that the German Empire loses annually eight millions of marks through bovine and porcine tuberculosis.

3rd.—«Is it definitely settled, in the opinion of the professors and scientific bodies of universal renown, that cows suffering from tuberculosis transmit always the disease to human beings, who drink their milk?» The communication of the President states positively: «No!»

If in fact, this transmission is not definitely proved, nevertheless it is very probable; and in the hygienic point of view, the possibility, however remote it may be, should be sufficient to justify in part the application of the test to dairy cows.

But, if it has not been shown experimentally that bovine tuberculosis can be transmitted to human beings by means of the milk from cows affected by the disease, there exist observations that clearly prove this transmission; such are the thoroughly convincing cases cited by Stang, Leonhardt, Demme, Johne, Bayard, Lucas and Morro, Utz, Klebs, Kruckows, Pfennige, Werth, Vollers, Delepine, etc.

The President will allow me to recall the case quoted by Nocard:

«Doctor Dumond (Geneva), son and grandson of medical men, had a daughter who up to the age of sixteen enjoyed perfect health. Suddenly her health began to break up; none of the medical men of Geneva who were called in could determine the true nature of the disease. Death took place at the end of seven or eight months.»

«Her father had the moral courage to have a post-mortem examination made, which showed the presence of *ganglionic mesenteric tuberculosis*.»

« Investigation having been made as to the origin of that tuberculosis, evidently due to the food, he remembered that his daughter every week went to pass Sunday at a small holding that he had on the mountain, and that her great pleasure was to drink freshly drawn milk. He then suspected that amongst the dairy cows there might be one affected by tuberculosis. »

« The tuberculin test was applied, and out of four animals, *three* were found to be affected, the post-mortem showing that two of them suffered from *tuberculosis of the mammae*. »

The dangers arising from the consumption of milk drawn from cows affected by tuberculosis is definitely recognized by the universal opinion of medical men and veterinary surgeons.

Virchow, himself, who in 1880 denied the identity of bovine and human tuberculosis, and was one of the opponents of Koch in the Congress held in London, admits the existence of this veritable danger to public health. Nocard, at the same meeting, said : « To-morrow as to-day I will cry : Mothers, do not give your children cows' milk without having first boiled it. »

Arloing has also shown that goats and asses can be inoculated with tuberculosis by cultures of pure human bacilli. So it appears strange, says this authority, that Koch should have made a clean sweep of all these considerations, as well as of the positive results obtained by other experimentalists, and that, relying on a series of negative results, he should have proclaimed absolute distinctions in tuberculosis, and undervalued completely those prophylactic mea-

tures which are considered of utility by the generality of hygienists.

In brief, then, there are authorities of world-wide fame who admit the transmission of bovine tuberculosis to the human species, by means of the consumption of the milk.

4th.—«The belief is wide-spread that this transmission only happens when the mammæ are affected, a fact of rare occurrence, that is not indicated by the thermal range of the tuberculin test.»

The reaction in the test has nothing to do with the various localisations of the tuberculosis, and it is not logical to presume otherwise.

The test is only a specific means that allows us to diagnosticate the presence of tuberculosis, without reference to locality.

Tuberculous mammæ is not so rare as it is believed to be, as statistics prove that out of 100 affected cows there are *two* mammary, as a general average; but in some herds where tuberculosis is widely spread, the proportion is still greater.

Besides this, it is quite sufficient, that the milk of one cow alone should contain bacilli, to infect all the milk, and although the danger is lessened in part by dilution, it makes it nevertheless still more general.

Again, it has been shown that milk drawn from cows suffering from this disease contains Koch's bacilli when the mammæ are affected, (Bang, Johne, Bollinger, Woodhead, Mac Fadyean) and equally so when these appear to be perfectly healthy. (Evans, Bang.)

The milk of infected cows affects animals under experiment when there are lesions in the mammæ (Bollinger, May, Hirschberger, Bang) or even taking them from the sound side, (Bang, May), or when there are no lesions whatever (Bollinger, Stein, Hirschberger, Ernst, Bang, Nocard.)

In short, numberless experiments have shown that milk from affected animals was virulent even when the mammæ were apparently healthy, and in 36,7 per cent of the cases, according to Baum, Ebess admits that milk may contain the Koch bacilli, from the sole fact of being contaminated by the fecal matter of affected cows that do not discharge mucus; so that, consequently, the presence of a mammary affection is not indispensable. Bang also admits this, and thus we can explain those cases of tuberculosis in calves, reared on raw milk procured from dairies where no cases of mammary lesions had been noticed.

The infection of swine in the slaughter houses of the capital, and observations made in various creameries, have shown that intestinal tuberculosis in swine, reared in creameries and dairies, is not unfrequent, a fact that proves that the Koch bacillus cannot be very rare in milk.

The makers of sausages within the municipal boundaries, are agreed in declaring that porcine tuberculosis has sensibly diminished since a change was made in the class of food, which was formerly all classes of waste procured from the slaughter-houses.

5th.—The President also remarks: «although the majority do not agree with him

in his theories, the great Koch has categorically denied, before the Congress in London, the identity of the two forms, and then adds: «this data alone suffices to show that the scientific basis, of the alleged necessity of the test, is far from being an accepted truth» and that the measures «certainly are not indispensable and further may prove to be perfectly useless.»

We have already said that the test is not applied solely to prevent the transmission of human tuberculosis, but also to guard the interests of stock-breeders, and even if the *opinion of Koch* should prove to be a fact, that would not prevent the diffusion of tuberculosis in our live stock, so that the test can never become useless, as the President appears to suppose.

Koch has tried to prove in the London Congress that human tuberculosis differs from bovine tuberculosis. Simply because we are treating of a celebrity, a large number of persons unacquainted with the subject accept, perhaps as an axiom, his opinion. With all his wisdom, Koch may be mistaken, as he has been several times ; in scientific annals we find records of what has been called *Koch's obsession* ; it may well happen that later on will be added what is called *Koch's opinion*.

Whoever examines the declaration of the German scientist by the light born of experience, will easily see that he does not prove beyond doubt the duality of human and bovine tuberculosis. This same Koch in 1882 declared the

identity of the tuberculosis in mammiferous animals (including mankind and cattle), and it cannot at present be understood how this same Koch, with only a basis of *negative experiments*, has been led to admit the contrary.

There are numerous experiments which prove that the animals experimented on by Koch can be affected by bacilli and tuberculous matter of human origin. Nocard has opposed, with *positive experiments*, the conclusions arrived at by Koch, and firmly believes in the possibility of the transmission of bovine tuberculosis to human beings, which he considers a fact that since long time back has been proved.

Chanseau, already in 1872, had proved this, and a large number of experimenters have confirmed it.

Recently Yong, in opposition to Koch's opinion has shown that cattle can be inoculated by bacilli of human origin, and that the only difference existing between human and bovine microbes is that the former are less violent than the latter, a fact pointed out by Falei, Theobald Smith and others. From this result it may be logically deduced that bovine tuberculosis is more dangerous than that of mankind.

Observations that prove the transmission of bovine tuberculosis to man have also been recorded.

Veterinaries, in making post-mortem examinations, have wounded themselves and have contracted local tuberculosis which, becoming later on generalised, has caused death.

It may be affirmed that, if before the *opinion of Koch* the identity of human and bovine tu-

berculosis was not discussed, at the present moment, in spite of that *opinion*, the identity of the two exists as an undoubted fact.

6th.—Has it ever been shown experimentally, as requisite in work deserving confidence, that the milk of the cows in Buenos Aires really propagates tuberculosis? enquires the President's note.

If the Argentine Rural Society refers to the propagation to the human species, it must be granted that it is not possible to prove it experimentally, unless some abnegating scientific enthusiast should allow himself to receive an injection of milk from cows affected by tuberculosis.

But even if this proof does not exist, the frequency of tuberculosis in swine, fed in dairies and creameries, proves that the Koch bacillus is present in the milk, and therefore that there is a possibility of the contagion of mankind.

7th—The Argentine Rural Society enquires, if any statistics exist regarding investigation as to the Koch bacillus in milk, and says that, if a considerable proportion of such bacilli had been discovered, the derogated orders and decrees would have had a rational justification and foundation.

Well then, there does exist a report showing that the Koch bacillus is very frequently found in the milk and butter produced by cows in the province (La Plata, division) based on researches made by Mr. Piazza, assistant in the Institute of Experimental Hygiene of La Plata, under the di-

rection of the ex-director, Doctor Mercante, by which it is shown that, in the samples taken from the cows of that city, 17,74 per cent of Koch's bacillus was found in the milk and 25 per cent in the butter.

8th.—The President maintains that the tuberculin test has no effect in the majority of cases in which tuberculosis is far advanced, *open* as the specialists say, and that the temperature reaction is often more typical when the dread disease is most incipient, from which he deduces that the measure may be sterile in the dangerous cases and only efficacious when there is no danger of contagion, as it is under the form of *closed tuberculosis*.

Before all, it is necessary that we should understand what is meant by *open* and *closed* tuberculosis. It was professor Grancher who established this division, from the point of view of the prophylaxis of human tuberculosis.

The first would comprise those cases in which the affected beings would scatter bacilli around them, and the other, those cases in which this ejection does not take place; so, for example, a ganglionic or serous form would be *closed* and a pulmonary one, having bacilli in the phlegm, *open*.

This division, though acceptable from the point of view exclusively preventive of human tuberculosis, is utterly inapplicable to cattle, because clinically it is impossible to distinguish differences and to know when it is closed and when open.

Besides, a closed tuberculosis may become open and vice versa, therefore the division has no importance whatever, or scientific basis in veterinary practice.

Advanced tuberculosis is not a synonym for open, nor incipient for closed, there being no relation between one and the other. An incipient tuberculosis of the pharynx, of the trachea, of the lungs or of the mammæ, may be open, and another very much advanced of the pericardium, pleura, peritonæum or liver, closed; and a closed pulmonary tuberculosis may at any moment change to the open form..

In fact, it is true that the tuberculin test may not produce a reaction in cases of advanced tuberculosis, open or closed, but in these cases the clinical examination is sufficient to assure the diagnosis, and cases of advanced tuberculosis cannot escape the notice of the veterinary surgeon.

There does not exist, as the President seems to suppose (1), any direct relation between the reaction of the test and the degree of generalisation of the disease; the reaction in an animal with a slight tuberculous focus, incipient, *closed*, is as typical as in advanced cases, generalised or *open*. It is not necessary to produce proof of this, as statistics exist of hundreds of thousands of tested cattle that verify the fact, and authorize the statement that, with the clinical examination and the tuberculin test, it is possible to diagnosticate cases of bovine tuberculosis in which prophylactic measures are applicable.

(1) This was never supposed by the President. (E. R. M.)

Read the works of Bang, one of the great authorities on the tuberculin test, and it will be impossible to doubt what has been said. Therefore, those deductions lack a scientific basis.

9th.—The compulsory application of the tuberculin test to the dairy cows of the province is, according to the President, non-scientific and impracticable.

The first assertion is founded on an indication by Nocard, who says: «on doit éviter de pratiquer l'inoculation chez les animaux entretenus dans les paturages: les variations atmosphériques (la pluie, vent, brouillard, soleil), provoquent encore des variations thermiques, les sujets éprouvés devront être rentrés à l'étable 24 heures au moins avant l'infection.»

Although it is true that these causes may influence slightly the temperature of the animals, an error is not possible, that is to say, when the test is applied to 20 or 50 animals, the thermal reaction of the test cannot be confounded with a reaction due to a general cause, which acts on all alike, and the experience of our veterinaries who have applied many tests proves that the inconvenience is remote and avoidable in practice.

As regards the statement that the application of the test is impracticable, no real reason exists to prove it; on the contrary, veterinary practice in this country shows that it is quite feasible.

On the other hand, we must agree that the measures indicated, with reference to the test on cattle, in the annulled regulations, were excessive.

At present it would be sufficient to enforce the application of the test to dairy cows, slaughtering those which show clear signs of tuberculosis, bad feeders and those with lesions on the mammæ.

Throughout the civilized world bovine tuberculosis is being fought against at the present moment, and it is really to be regretted that in the province of Buenos Aires, the richest in Argentina, and in the best condition to apply the test, regulations scientifically based have been annulled, on account of abuses and imperfect application in practice.

The Argentine League against tuberculosis has attempted to give an impartial opinion on this subject, which is of such transcendental importance in connection with the live stock of the country, and on this account has been obliged to enter into the long series of considerations herein set forth.

I salute the President with the highest respect

Samuel Gache
B. T. Solari, Sec.

Buenos Aires, 30th May 1902.

To the President of the Argentine League
against tuberculosis,

Doctor Samuel Gache

Mr. President:

In this secretariat has been received the note forwarded by the Argentine League against tuberculosis, in answer to the communication of the

19th inst., in which the Argentine Rural Society explained the reasons which determined it to petition for the derogation of the dispositions referring to the application of the tuberculin test to the dairy cows of the province of Buenos Aires.

It is truly difficult to discover the fundamental idea that prevails in the note to which I answer, because on the one hand it declares that «the Argentine Rural Society, in petitioning for the derogation referred to, proceeded opportunely,» whilst on the other it refutes one by one all the reasons brought forward in its communication, concluding that «it is really to be regretted that regulations scientifically based have been annulled, on account of abuses and imperfect application in practice.»

Whatever may be the object sought, the Argentine Rural Society cannot leave unanswered the document alluded to, as it requires to make it clearly established that the obligatory application of the tuberculin test to dairy cows would be in our country a violation of the liberty of industry, which is not justified by sanitary requirements, an imposition which is not founded on indisputable scientific precepts, and an operation impracticable in every way, in view of the processes and resources of our zootechnical practice, so peculiar and so very unlike that of Europe. I insist on these affirmations, because on them the whole of the discussion initiated by the President of the League turns, and I repeat them anew, to signify that either he has not answered them at all or has done it in an unconvincing manner.

Allow me to declare at once that we shall not enter into scientific discussions, which are not incumbent on me, nor am I in a position to treat; I shall limit myself to defend the position taken up by the Argentine Rural Society, in protection of the interests which it represents, showing what we have learnt in our practice, and arguing with the didactic records found in books, which may be consulted by professionals as well as by those who are not, and which place the triumphs of science within reach of all.

The Argentine Rural Society has stated «that it is not definitely settled that cows suffering from tuberculosis transmit the disease to human beings, who drink their milk,» and the President of the League enters into voluminous considerations and quotes names of authors in order to answer this assertion; but all he proves is that there has been considerable debate regarding it, without arriving at a contrary conclusion, which would be the only thing which could justify the coercive measures against which we protest.

Let the President show that there is no longer any doubt respecting the uniformity of tuberculosis and its *frequent* contagiousness, no longer exceptional, and in this manner he might prevent our most just resistance against an imposition whose advantages are to-day denied by the highest authorities. The League may discuss with Professor Koch and his adepts as much as it please, but it must not attempt to convince the proprietors that they should allow themselves to be executed in silence, out of consideration for theories which are still controverted.

The Argentine Rural Society also maintains that there is no proof whatever that the milk of the cows in the province of Buenos Aires menaces public health, to such an extent as to render violent measures necessary to prevent its destructive effects; and as the League believes that these measures are indispensable, it should have produced the required proofs, instead of launching out into useless disquisitions on details of the controversy, and on words more or less incorrectly used or understood. This Society goes even further: it declares that such danger does not exist, because tuberculosis is at a minimum in our herds and its presence in milk almost nil, as I will now quite readily show.

It is well known that housing the animals is the most propitious medium for the development and the diffusion of this disease, and it is, in consequence, not surprising that where cows live under cover, the proportion of tuberculous animals is large. Therefore, it was really to be expected that in this city a considerable number should be found, as has in fact happened. From the year 1897 to the end of 1901, the Dairy inspectors have applied the test in the town dairies to 8680 cows, of which 1442 reacted; that is 16.57 per cent. Well, in this number not one single case of tuberculous mammæ has been detected; nor has the Koch bacillus been discovered in any of the milk tests carried out by Doctor Badia at the Public Assistance department, as may be seen by the data taken from his work on the subject, which is just now issued.

In the province of Buenos Aires, there are no statistics, not even incomplete, that are worthy of the name; but there is a very suggestive record, which may be substituted for them in this case, in the statistical tables of the public slaughter-houses of the capital. From these we learn that the mean of the animals whose meat has been rejected on account of tuberculosis has been, during the last five years, ONE FIFTH PER CENT! or to use whole numbers TWO PER MIL! On this minute proportion, let us see what the specific tuberculosis of the mammæ would amount to, which the President of the League himself supposes would only be 2 per cent of the affected animals, and we obtain infinitesimal figures: one case of mammary tuberculosis in twenty-five thousand cows!

Delépine, of Manchester, in his studies on tuberculous mammæ, was able to prove that in only one-half of the cases the milk produced was of virulent character; so that the result here, in this proportion, would be one case of virulent milk for each fifty thousand dairy cows, that is to say, ten dangerous cows in the whole of the province.

And there is no reason to suppose that the proportion would be greater amongst the dairy cows than in other cattle, because with the hard life they lead in our rural establishments, badly fed and without protection of any kind against the weather, they could not resist as well as the others and would quickly succumb if attacked by this disease. For this reason we can take the slaughter-house statistics as approximate for the dairies.

But we should not limit this study to what occurs in this country, where bovine tuberculosis is so rare, and where it is difficult that it should spread, on account of the open air life the animals lead. Take for example France itself, which is the last favoured country in this respect. Professor Nocard communicated the fact to a meeting of the Society of Agriculturists of France, held in the month of April last; there, in some departments, the number affected by tuberculosis has reached the enormous proportion of thirty (30) in each hundred (100) cattle, and of 225,000 inoculated during the last five years the average has been 28 per cent. Nevertheless, «in answer to some remarks from M. Couet, M. Nocard said that contagion by means of the milk is extremely rare in man, because, in the cases in which the mammæ present lesions, the cow shows clinical indications, and is at once placed in the class of those which are to be slaughtered.»

Here we do not treat of the *obsession of Koch*, as the President of the League said; it is the declaration of his eminent opponent in the Congress of London! And now we may ask: If in France contagion by means of the milk is rare, with 28 per cent of tuberculous cattle, is it to be feared here where it amounts to only two per mil? The Rural Society answers with a decided negative; and in the presence of such rigorous statements, it finds itself in the necessity of disregarding the agreed opinion «*of the sausage makers*,» to which the President alludes in his note, quoting them as authorities on the question in debate.

The evident fact that arises from all this is that there is no danger here to conjure, but rather a tendency to contend against, which leads us to imitate whatever is done in Europe, without the faculty of application which is indispensable in our surroundings, in our peculiar rural practices, so diametrically opposed to those of the other hemisphere. I must insist also in this, as the President has taken no notice whatever of the considerations of local character, which formed four fifths of our previous exposition and which constitutes the pith of the matter of which we treat. Bovine tuberculosis, a veritable scourge in the greater part of Europe, is in this country only a minute factor in the diffusion of human tuberculosis, even within the supposition of identity, because the conduct of our rural undertakings, not only is unfavourable to its propagation, but also recommends itself as the only means of eradicating the pest. In the same meeting of the Society of Agriculturists of France, held last month, to which I have already referred, M. Nocard, in answer to a question from M. Maurice Boucher, said amongst other things: If the disease (bovine tuberculosis) is rare in Normandy and Auvergne, it is because « *the open air life during many months is the least favourable condition for the diffusion of the germs.* » And if this occurs there, where the animals return to the contaminated sheds, to pass through five or six months of winter, does it not appear to the President that in our estancias, where they are never housed, the conditions will be even less favourable for the diffusion !

Thirty per cent of the cattle are affected by bovine tuberculosis throughout France, with exception of Normandy and Auvergne, where cases are rare. The reason for the difference is the open air life during many months. In the province of Buenos Aires: two per mil, and open air life throughout the year! Please make a note, Mr. President, of this, and of what is still to come.

In France, by reason of supplementary feed when pasture becomes scarce, tuberculosis can go through a normal evolution, be it in the sense of cure or towards generalization and death. On our grazing lands the normal evolution would be a rare process in the rare cases of infection, because the gradual progress of the disease, in either of the opposite directions, requires before anything else generous constant feeding, which is exactly what is lacking in the stock farms of this country. To-day, in the green luxuriant meadow, to-morrow in the dry and frozen common; under a radiant sun at times, at others, shrunken, starving, soaked to the marrow and stiff with cold for day and days together, until the terrible storm passes away, the poor animals of our inhospitable campaigns cannot shelter in their shrivelled bowels the exacting guest for very long. The struggle for life must soon be decided; either the action of phagocytes comes to the rescue, aided by a regimen of fresh air and good nourishment, or the terrible bacillus conquers by dominating the whole organism and killing the animal. What is commonly called an *epidemic*, a frequent event which is no more than death from inanition, due

to the absolute want food, constitutes the best defence of Argentine stock, on account of the perfect culling which it performs, killing the affected animals and allowing only the survival of the sound. Then, the light, the sun and pure air, complete the work, by the destruction of the pathogenic germs. It is the ideal prophylactic.

In the dairy cows all the circumstances mentioned are exaggerated, on account of the severe service to which they are put; the long stay in the dairy pens, converted into filthy mudholes by the slightest rain, the incessant going to and fro from the pens to the watering place, or to the meadow; the triple drain of nutritive matter which they suffer, for their proper organism, for the calf, and for mankind, which draws from them daily the most precious product of their blood; all this moving about and the servitude, which shorten the life of the dairy cows in an average of twenty five per cent, are certainly not circumstances which increase or stimulate their resistance. On the contrary, they place them in much worse conditions than the stock before mentioned, which are free from the severe duties of the dairy; so that the necessary consequence of contagion is rapid death, almost without transition.—It is these, among which there are less probabilities of finding disease, that the President of the League desires so earnestly to have tested and slaughtered, «not only to prevent the transmission to man,» as are his exact words, but also «to guard the interests of our live stock»; which thus appear to have been abandoned by the Argentine

Rural Society and protected by the League of medical men to whom I reply.

But, supposing that the test could be applied to the dairy cows under satisfactory conditions, we should not thereby acquire a benefit for our stock worthy of the sacrifices imposed. In 25 millions of cows only half a million are used in the dairies, so that the balance would remain uncared for: 24 1/2 millions would remain without protection.

The President will allow me to say that he is not in a position to affirm, as he does, that there is an alarming increase of bovine tuberculosis in this country—I refer to stock that are not housed—because he cannot have data on this subject. What has served him as a basis, the statistics of the slaughter-houses of the capital, give figures almost equal for the last five years, or which spring so rapidly from a previous minimum to the almost invariable one that follows, that we might suspect that there had been a change of inspectors.

These statistics presuppose an experienced man and diseased animals; but they do not state whether the increase is in the number of affected animals or, in the knowledge of the expert. In my opinion the latter would be the most likely interpretation. The President will see that even in swine tuberculosis has decreased, according to «the unanimous opinion of the sausage makers,» which he quoted, in the hope of triumphantly refuting me.

I have stated that the application of the test to dairy cows in the province of Buenos Aires is unscientific and impracticable. The former be-

cause our technical knowledge shows us that the test applied in the open air to grazing animals cannot be relied on, and requires that these should be housed; and the latter on account of the well founded reasons of practical character which I brought forward. To this the President replies, as sole answer, with «the experience of our veterinaries, which shows, on the contrary, that it is very feasible»,—and nothing more! To the lessons of the professors, who teach the manner of performing this delicate operation with the requisite precautions, and to the remarks of the associations of stock-men regarding the material impossibility of carrying it out in their establishments, the only answer given is that the result of the tests effected by our veterinaries has been satisfactory, who are precisely those who have raised the unanimous protest, on account of the innumerable failures and abuses caused by many of them. Veterinaries who inject tuberculous serum procured from a well, who do not require a thermometer to take the temperature because the simple appearance is enough for them, who will contract at reduced prices if five thousand cows are furnished to experiment on; this is what constitutes gospel for those who, in the name of science and of public health, wish to impose on us the compulsory tuberculin test.

Personally, I feel very much obliged for the lessons which the President has had the kindness to give me; but he will permit me not to accept them, because they are of no use to me in the questions on which I have presumed to write. That which refers to the con-

nection of the thermal curve, in the reaction of the test, with the degree of generalization of the infection, might have been motivated if I had attempted to establish it; but this was not the case. On the contrary, I have said that the curve does not indicate that degree; and it is precisely on this circumstance that I based my declaration that the tuberculin test is utterly useless when applied to dairy cows in the open air on pasture, because it does not indicate the dangerous cases, but on the contrary those which almost always are harmless.

With respect to the other lesson, as to what should be understood by closed or open tuberculosis, I may be allowed to observe that I have not suggested that these terms are synonymous with incipient or generalized. I have used the words: « in the majority of cases », which excludes the generality of a rule; and I know very well what Grancher has said about it, because I drew from his communication to the Congress at Paris in 1900.

Generalized tuberculosis is *generally* open, and the incipient *generally* closed, but this does not imply that such is always the case, nor that the expressions are synonyms.—But it is useless to discuss words.

I have purposely left for the last a sensational argument which the President of the league brings forward. It is the virulence of the milk and butter in the province of Buenos Aires. The case is really of the utmost gravity. « Researches made by Mr. Piazza, assistant in the Institute of Experimental Hygiene of La Plata.....

by which it is shown that 17.74 % of the Koch's

bacillus is found in milk and 25 % in the butter! This is what the President says textually in his note. I confess that I do not quite understand. Two hundred and fifty grammes of bacilli in one kilo would make a butter rather too «microbic,» and a quarter of the samples examined found to contain bacilli, seems also to be too large a proportion to be taken as truthful. There must be an error, and I suspect similar to what happened in Berlin in 1897. In that year, and in samples taken from the retailers of butter in the city, Obermüller found *one hundred per cent* of virulent butters, whilst Lydia Rabinovitsch found *nought per cent*.

This discrepancy was explained by the circumstance that the Koch bacillus had been mistaken for that which afterwards was named the pseudo-bacillus of butter, when the characteristic of the latter had been established by the illustrious lady whose name it now bears.

It is not impossible that the confusion made by Obermüller may have also been incurred by Mr. Piazza of La Plata, whose statements have been accepted as sterling coin by the President of the League against tuberculosis, without further examination.

I repeat, once more, that the Argentine Rural Society will always be disposed to welcome with sympathy and to assist with the utmost diligence every innovation that imports progress; if in the present case it has resisted the tuberculin test on dairy cows, it is because the measure is useless, prejudicial and insufficiently considered. But the discussion still remains open, with a vast field for experiment, which in

cludes the whole country, and an elevated stage which has been raised for it by this Society: «The Congress of Alimentary Hygiene in its relations with rural economy», which will meet in September next, during the celebration of the annual exhibition of live-stock.

There, the members of the League can give the valuable aid of their illustration on these matters and maintain to the fullest extent their convictions, complying at the same time satisfactorily with the objects of the philanthropic mission which they have undertaken.

The President will kindly excuse the excessive length of this note, which, to use a well known proverb, I have not had time to make shorter, and will also deign to receive the testimony of my highest consideration.

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